Hence the previous expression becomes

$$\text{Const.} = J^2(\delta\xi)^2\left[\left(\frac{\partial\eta}{\partial y}\right)^2/\epsilon_x^2 + \left(\frac{\partial\eta}{\partial x}\right)^2/\epsilon_y^2\right]$$

$$+ J^2(\delta y)^2\left[\left(\frac{\partial\xi}{\partial y}\right)^2/\epsilon_x^2 + \left(\frac{\partial\xi}{\partial x}\right)^2/\epsilon_y^2\right]$$

$$- 2J^2\delta\xi \cdot \delta y\left[\frac{\partial\eta}{\partial y} \cdot \frac{\partial\xi}{\partial y}/\epsilon_x^2 + \frac{\partial\eta}{\partial x} \cdot \frac{\partial\xi}{\partial x}/\epsilon_y^2\right]$$

$$= J^2(\delta\xi)^2\epsilon_\eta^2/\epsilon_x^2\epsilon_y^2 + J^2(\delta y)^2\epsilon_\xi^2/\epsilon_x^2\epsilon_y^2$$

$$- 2J^2\delta\xi \cdot \delta\eta\left[\frac{\partial\xi}{\partial x} \cdot \frac{\partial\eta}{\partial x}\epsilon_x^2 + \frac{\partial\xi}{\partial y} \cdot \frac{\partial\eta}{\partial y}\epsilon_y^2\right]/\epsilon_x^2\epsilon_y^2$$

$$\therefore (\delta\xi)^2/\epsilon_\xi^2 + (\delta\eta)^2/\epsilon_\eta^2 = \text{const.}$$

on division by $J^2\epsilon_\xi^2\epsilon_\eta^2/\epsilon_x^2\epsilon_y^2$ (considered constant), if the condition

$$\frac{\partial\xi}{\partial x} \cdot \frac{\partial\eta}{\partial x}\epsilon_x^2 + \frac{\partial\xi}{\partial y} \cdot \frac{\partial\eta}{\partial y}\epsilon_y^2 = 0$$

is satisfied. This for the case $m = n = 2$ agrees perfectly with the general conditions for independence previously found. The method employed here has the advantage that it indicates the nature of the function which the condition fulfils.

Oxford: 1901 *March* 2.

Observations of Leonids, 1900 *November* 15–16, *made at the Royal Alfred Observatory, Mauritius.*

(*Communicated by T. Folkes Claxton.*)

No.	Observer.	1900. Mauritius Civil Time.				Apparent size (in Star Magnitudes).	Duration in secs.	Colour.	Train.	From R.A.	Dec.	To R.A.	Dec.
		d	h	m	s					°	°	°	°
1	O.	15	0	25	11	>1	2	Blue	5 secs.	101	−15	112	0
2	O.		0	56	21	2	1½	Bluish	Slight, 5 secs.	112	+30	131	+20
3	P.		2	27	56	2	1	Bluish	None	112	+30	124	+40
4	Or.		2	56	39	>1	2½	Bluish	Long, 2 secs.	146	0	105	+48
5	W.		3	23	36	2	1½	White	Slight, ½ sec.	146	+10	135	+ 3
6	W.		4	3	51	2	1	Bluish	None	160	−11	163	−20
7	W.		4	14	55	1	½	Bluish white	None	177	−50	190	−58
8	W.	16	0	56	44	1	1	Red	None	128	−28	139	−24
9	W.		0	15	0	1	1	Bluish white	1½ sec.	110	+ 8	109	+20
10	O.		2	30	11	1½	½	Bluish	Slight	131	+22	145	+15
11	O.		2	43	10	2	2	Bluish white	1 sec.	161	−27	139	−40

Watch was kept by four observers from November 13^d $23\frac{1}{2}^h$ to 14^d 2^h, and by one observer until 14^d 4^h. No *Leonids* were seen, although the weather was favourable.

From 14^d 20^h to 22^h 30^m watch was kept by one observer at intervals: from 15^d 0^h to 3^h continuously by three observers, and by four observers until $4\frac{1}{2}^h$ (daylight). Clouds at frequent intervals throughout.

15^d 0^h 48^m. Moon rose from behind cloud.

15^d 1^h 35^m. Large amount of cloud in neighbourhood of radiant, rain falling heavily to northward. None fell at observatory.

15^d 1^h 45^m. Rain extending from north to west. Lunar rainbow developed during this shower.

Watch kept by two observers on 16th, and at intervals by one observer on November 17.

Initials: W., O., O^r., P.=Messrs. Walter, N. V. Olivier, L. N. Olivier, and Piveteau.

Observations of the Partial Eclipse of the Sun 1900 November 22 made in Western Australia.

(*Communicated by W. Ernest Cooke, Government Astronomer.*)

The partial eclipse of the Sun was observed at the Perth Observatory, W.A., on 1900 November 22. Instrument 10-inch refractor.

		h	m	s
G.M.T. of first contact November 21		19	37	26·82
,, last ,, ,,		22	06	38·28

The Moon's edge passed the first of two small spots at 19^h 52^m $50^s·28$.

Observations of a solar blackened bulb and a dry bulb thermometer in a Stevenson's screen were taken at the observatory at Carnarvon, near Shark's Bay, and at a small island in Shark's Bay, as nearly as possible in the central path. These observations are enclosed herewith.

Photographs were also taken at various times during the eclipse. The negatives are preserved, but no special measurements have been made on them.